Neutron Scattering Research Awareness and Preference

Identification of key messages and communication channels

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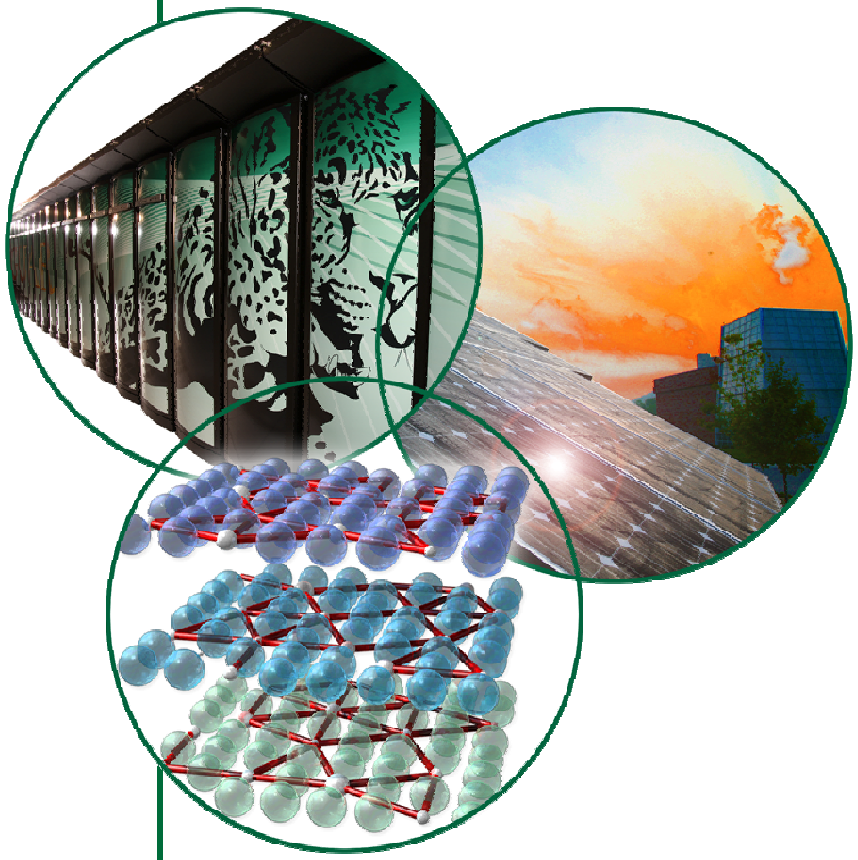

U.S. DEPARTMENT OF ENERGY

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Questions to be answered

- What is the level of understanding by APS and NSLS users regarding benefits of neutron scattering?
- How widespread is awareness of ORNL neutron scattering capabilities?
- Are there negative perceptions impacting utilization of HFIR and SNS?

Ultimately: identify key messages as well as communication channels to boost understanding

Methodology

- Gain insights and access
  - Stakeholder meetings
  - Online interviews
  - One-on-one interviews
- Quantify the insights
  - 18-minute questionnaire
  - Surveyed in English
- Sample size: Argonne (523), Brookhaven (240) and ORNL (136)

Awareness and utilization

Awareness of complimentary tools or techniques is not widespread.

- **48% of NSLS and 37% of APS users are unaware of SNS**
  - **Higher concentration if female, not scientist at national lab, 20 years or less experience, or in areas other than physics or materials science**
- **71% of NSLS and 68% of APS users are unaware of HFIR**
  - **Higher concentration if female, not scientist at national lab, 20 years or less experience, or in areas other than physics or materials science**

Choice Rationale of User Facility

- Overwhelmingly (>70%), the choice is due to capabilities that facility afforded their scientific work
  - Refinement of this answer is ongoing
- Proximity was more likely mentioned by light source users (particularly NSLS) than by neutron source users
- Summer School more prominently impacted choosing a Neutron Source than it did a light source.

Beliefs about Proposal Submission

Indicate how much you agree or disagree with each of the following statements: When submitting a proposal it is important to… (1=Disagree Completely, 10=Agree Completely)	Weighted Total (n=899)			
	MEAN	% NOT SURE	% N/A	More likely rated 8+ if:
…know the capability of the beam line	9.2	2.2	1.0	PhD
…know how much sample will be needed	8.3	2.8	1.3	ORNL user, No Neutron Source experience
…talk with an instrument scientist at the facility	8.2	3.2	1.4	ORNL user, Have Neutron Source experience; In Materials Science
…get written feedback on any prior proposal	7.8	3.6	2.4	No significant differences noted
...submit a proposal that features high-impact science	7.5	3.5	1.8	Age 30+, PhD
...see examples of successful proposals	7.4	2.7	1.7	Female, Younger, Student, In Biological Science rather than Physics, Less experience
...get specific guidance on how to write the proposal	7.2	3.1	1.8	Female, Postdoc, In Biological Science rather than Physics, Less Neutron Source experience
...know the oversubscription rate of that beam line	6.8	7.7	1.9	Less Neutron Source experience
...have prior contact with the user office at that facility	6.5	5.2	2.2	In Materials Science rather than Physics, Less Neutron Source experience
...collaborate with someone who has already done a similar type investigation	6.3	3.7	1.9	No significant differences noted
...already know how to use the beam line	5.8	2.7	1.6	No significant differences noted
...collaborate with a prior user of that beam line	5.8	4.8	2.2	Female, No Neutron Source experience

Gap Analysis

Gap Score: mean experience rating – mean importance rating

- Spallation Neutron Source

-: Hotel room on campus, reliable operation, intuitive software, food services, 24/7 beam notification, sample environment

+: Facility staff available 24/7

- High Flux Isotope Reactor

-: Hotel room on campus, food services, sample environment

+: Beamline scientist is recognized expert

- National Synchrotron Light Source

-: Food service, reliable operation

+: Beamline scientist is recognized expert

- Advanced Photon Source

-: No big issues

+: Hotel on campus, characterization facilities available

"-" means importance exceeded users' expectations, or progress can be made

"+" means users' expectations exceeded importance, or users were satisfied

Educational Approaches

	WEIGHTED TOTAL (Percent Total, n=899)							
If available, indicate how likely you are to participate in the educational approaches listed below.	Total Likely	Very Likely	Somewhat Likely	Total Unlikely	Somewhat Unlikely	Very Unlikely	Not Sure / Don't Know	More Likely to Say Very Likely or Somewhat Likely if…
Workshops at conferences	**82**	36	45	**16**	11	5	2	Female
"Hands on" learning at the facility	**81**	49	33	**17**	12	5	2	Student; Less Neutron Source experience
Hard copy, like books, journals	**78**	33	45	**20**	14	6	3	At NSLS than APS
Archive of lectures accessible through the web	**76**	34	42	**21**	13	8	3	Less than 50
Topical lectures at the facility	**65**	23	43	**31**	20	11	3	Scientist at National Lab; In Materials Science, Not in Biological Science
Technique-specific Wiki	**58**	21	36	**32**	19	14	10	Less than 50; Postdoc or Student; In **Biological Science**; **Less experience**
"Hands on" learning in a virtual facility environment	**54**	21	33	**38**	22	16	7	Female; Less than 30; Postdoc or Student; In **Biological Science**; **Less experience**
Discipline-specific Wiki	**53**	19	34	**36**	20	16	11	Less than 50; Postdoc or Student; In **Biological Science**; **Less experience**

Getting User Facility Information

- About facility capabilities, the preferred option is
  - Email more likely if female, In biological science, No neutron source experience
  - Talking with someone at facility more likely if 30+, or in materials science
  - At conferences more likely if ORNL user, or in materials or earth science
  - Workshops if in materials science
- Communicating with User Office , the preferred option is
  - Email more likely if 50+
  - Workshops more likely if they have less neutron source experience, or in materials science
  - Instant messaging more likely if student
  - Postal service mail if 50+
  - Wiki if in biological science
- Communicating With Scientist at User Facility
  - Phone more likely if 1-3 year neutron source experience
  - Conferences more likely if In physics, not biological science
  - Workshops more likely if 1-3 year neutron source experience or in earth science, not biological science
  - Instant messaging more likely if <30, have less education, or less light source experience
  - Webinar more likely if scientist in private industry

Relevance to NUFO members

- User populations have different needs and behaviors that are based on

  Age and/or gender Affiliations

  Geographic locations Proximity to facility

  Experience Subject matter

- Effective outreach efforts should acknowledge and appreciate these differences; there is strong evidence that a variety of communications are necessary
- Analysis of these results continues